

Amendments to the Claims:

Claims 1-3 (Cancelled).

Claim 4 (Currently amended): ~~An adaptive method as recited in claim 3~~
An adaptive method for predistorting an RF modulated signal, to be transmitted, supplied by a signal source to an input of a power amplifier having an output for delivering an amplified output signal, said method comprising the steps of:

predistorting the RF modulated signal to be transmitted using an I/Q modulator interposed between the signal source and the input of the power amplifier, and controlled by means of amplitude and phase look-up tables stored in a distorting generator;
producing, via a first digital receiver, a first feedback signal in response to the RF predistorted signal;

producing, via a second digital receiver, a second feedback signal in response to the RF amplified output signal from the power amplifier;

modeling the power amplifier in response to the first and second feedback signals; and

updating the predistortion amplitude and phase look-up tables in response to said modeling of the power amplifier,

wherein said second feedback signal includes the complex envelope of the RF amplified output signal, and

wherein said modeling step includes the discrimination of the complex envelope of the first feedback signal referenced to the complex envelope of the second feedback signal to yield a predistortion function correlated to a behaviour of the power amplifier including nonlinearities and memory effects.

Claim 5 (Previously presented): An adaptive method as recited in claim 4, wherein said modeling step is done in real time.

Claim 6 (Currently amended): ~~An adaptive method as recited in claim 1~~
An adaptive method for predistorting an RF modulated signal, to be transmitted, supplied by a signal source to an input of a power amplifier having an output for delivering an amplified output signal, said method comprising the steps of:

predistorting the RF modulated signal to be transmitted using an I/Q modulator interposed between the signal source and the input of the power amplifier, and controlled by means of amplitude and phase look-up tables stored in a distorting generator;

producing, via a first digital receiver, a first feedback signal in response to the RF predistorted signal;

producing, via a second digital receiver, a second feedback signal in response to the RF amplified output signal from the power amplifier;

modeling the power amplifier in response to the first and second feedback signals; and

updating the predistortion amplitude and phase look-up tables in response to said modeling of the power amplifier,

wherein said updating step is done when a linearity metric ~~an~~ adjacent channel power ratio (ACPR) measurement sub-step indicates that the predistorting step is not adequate to meet predetermined ACPR standards.

Claim 7 (Previously presented): An adaptive method as recited in claim 6, wherein said linearity metric ACPR measurement sub-step is done via a digital receiver that includes a first channel tuned to a mean frequency and a second channel that is tuned to a predetermined offset frequency, said linearity metric ACPR measurement sub-step including comparing an average power at the mean frequency and at the predetermined offset frequency.

Claim 8 (Cancelled).

Claim 9 (Currently amended): ~~An adaptive device as recited in claim 8 An adaptive device for predistorting an RF modulated signal to be transmitted, supplied by a signal source to an input of a power amplifier having an output for delivering an amplified output signal, said adaptive device comprising:~~

an I/Q modulator interposed between the signal source and the input of the power amplifier;

a distorting generator including predistortion amplitude and phase look-up tables; said distorting generator controlling said I/Q modulator to predistort the RF modulated signal to be transmitted in amplitude and in phase;

a first digital receiver producing a first feedback signal in response to the RF predistorted signal from said I/Q modulator;

a second digital receiver producing a second feedback signal in response to the RF amplified output signal from the power amplifier;

a control module receiving said first and second feedback signals from said first and second digital receivers; said control module being so configured as to model the power amplifier in response to the first and second feedback signals and to update said amplitude and phase look-up tables of said distorting generator in response to a dynamic modeling of the power amplifier,

wherein said look-up tables of said distorting generator are indexed by an envelope detector that detects the envelope of the signal to be transmitted before predistortion.

Claim 10 (Previously presented): An adaptive device as recited in claim 9, wherein said envelope detector indexes the distorting generator via an analog to digital converter.

Claim 11 (Currently amended): An adaptive device as recited in claim 8
An adaptive device for predistorting an RF modulated signal to be transmitted, supplied by

a signal source to an input of a power amplifier having an output for delivering an amplified output signal, said adaptive device comprising:

an I/Q modulator interposed between the signal source and the input of the power amplifier;

a distorting generator including predistortion amplitude and phase look-up tables; said distorting generator controlling said I/Q modulator to predistort the RF modulated signal to be transmitted in amplitude and in phase;

a first digital receiver producing a first feedback signal in response to the RF predistorted signal from said I/Q modulator;

a second digital receiver producing a second feedback signal in response to the RF amplified output signal from the power amplifier;

a control module receiving said first and second feedback signals from said first and second digital receivers; said control module being so configured as to model the power amplifier in response to the first and second feedback signals and to update said amplitude and phase look-up tables of said distorting generator in response to a dynamic modeling of the power amplifier,

wherein said look-up tables of said distorting generator are indexed by data from a third digital receiver that down-converts the signal to be transmitted to baseband.

Claim 12 (Previously presented): An adaptive device as recited in claim 11, wherein the data from said third digital receiver is supplied to said control module that indexes said distorting generator accordingly.

Claim 13 (Currently amended): An adaptive device as recited in claim 8
An adaptive device for predistorting an RF modulated signal to be transmitted, supplied by
a signal source to an input of a power amplifier having an output for delivering an amplified
output signal, said adaptive device comprising:

an I/Q modulator interposed between the signal source and the input of
the power amplifier;

a distorting generator including predistortion amplitude and phase look-up
tables; said distorting generator controlling said I/Q modulator to predistort the RF
modulated signal to be transmitted in amplitude and in phase;

a first digital receiver producing a first feedback signal in response to the
RF predistorted signal from said I/Q modulator;

a second digital receiver producing a second feedback signal in response
to the RF amplified output signal from the power amplifier;

a control module receiving said first and second feedback signals from
said first and second digital receivers; said control module being so configured as to model
the power amplifier in response to the first and second feedback signals and to update said
amplitude and phase look-up tables of said distorting generator in response to a dynamic
modeling of the power amplifier,

wherein said control module is so configured as to update said amplitude and phase look-up tables when an adjacent channel power ratio (ACPR) measurement indicates that the predistortion made by said predistorting generator is not adequate to meet predetermined ACPR standards.

Claim 14 (Previously presented): An adaptive device as recited in claim 13, wherein said ACPR measurement is done via said second digital receiver that includes a first channel tuned to a mean frequency and a second channel that is tuned to a predetermined offset frequency, said ACPR measurement including comparing an average power at the means frequency and at the predetermined offset frequency

Claim 15 (Currently amended): ~~An adaptive device as recited in claim 8~~
An adaptive device for predistorting an RF modulated signal to be transmitted, supplied by a signal source to an input of a power amplifier having an output for delivering an amplified output signal, said adaptive device comprising:

an I/Q modulator interposed between the signal source and the input of the power amplifier;

a distorting generator including predistortion amplitude and phase look-up tables; said distorting generator controlling said I/Q modulator to predistort the RF modulated signal to be transmitted in amplitude and in phase;

a first digital receiver producing a first feedback signal in response to the RF predistorted signal from said I/Q modulator;

a second digital receiver producing a second feedback signal in response to the RF amplified output signal from the power amplifier;

a control module receiving said first and second feedback signals from said first and second digital receivers; said control module being so configured as to model the power amplifier in response to the first and second feedback signals and to update said amplitude and phase look-up tables of said distorting generator in response to a dynamic modeling of the power amplifier,

wherein said control module is further configured as to insert an adequate delay between the first feedback signal and the second feedback signal.

Claims 16-17 (Cancelled).